11-4: Estimating Solutions to Polynomial Equations

Warmup: Rewrite with simpler coefficients. Do not solve. Put in standard form.

1. $10x^2 + 40x - 50 = 0$

2. $.3x^2 - .2x = .21$

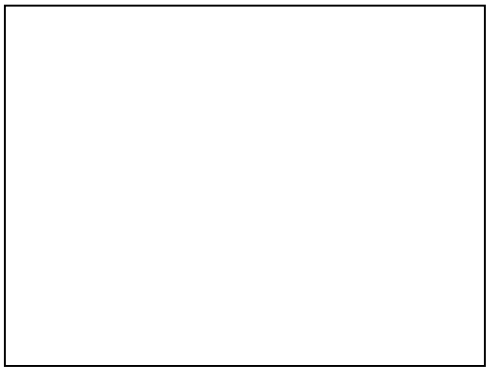
3. $\frac{1}{2}t - \frac{t}{6} = \frac{1}{4}t^3 + t^2$

Example 1: The volume of a box is $V(x) = 4x^3 - 88x^2 + 480x$. Find x when the volume = 500 cm^3.

***Notice, quadratic (degree 2) equations have 2 possible solutions. Cubics (degree 3) have 3 possible solutions. The degree is the *maximum* number of solutions an equation can have. Just because it is the maximum does not mean that there will be that number of solutions.

Example 2: The sum of a number, that number's square, and its cube is 1. Find the number.

Example 3: Graph and estimate the zeros for $f(x) = 2x^3 - x + 2$.



How to use your TI-84 to find zeros:

Using the solver:

Homework:

"It does not seem to be true that work necessarily needs to be unpleasant. It may always have to be hard, or at least harder than doing nothing at all. But there is ample evidence that work can be enjoyable, and that indeed, it is often the most enjoyable part of life." - Mihaly Csikszentmihalyi